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EXAMINER	
DANG, HUNG Q	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/729,863	DUNBAR ET AL.	
	Examiner	Art Unit	
	Hung Q. Dang	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20-27* is/are allowed.

6)☒ Claim(s) *1-10,12-19 and 28-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/22/2004, 11/19/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 11/19/2007 have been fully considered but they are not persuasive.

At page 22, regarding claim 15, Applicant argues that Comer does not disclose the limitation of "wherein decoding the most recent key frame includes partially decoding the most recent key frame to an intermediate format." In response, the Examiner respectfully disagrees. As described in column 10, line 52—column 11, line 9, Comer discloses the decoding and reverse playing process of an MPEG stream at a speed of three times larger than normal playback. Comer also discloses the conversion process to convert the stream into a format that is compatible with NTSC format, which involves a decoding and displaying process that is further described in column 11, lines 11-61 and illustrated in Fig. 7. This decoding and displaying is performed on a field basis, in which each field is decoded and displayed or discarded as described. In the cited paragraphs, the notion of "I frame" is the key frame. With reference to Fig. 7, depending on which frame the current frame is, the most recent key frame could be either I(1), (I13), or I(25). For example, if the current frame is P(22), then the most recent key frame is I(13) as shown in Fig. 7.

Because the decoding and displaying of these key frames is performed in a field basis, it is "partial decoding" because a field is only a part of a frame. Also, to the Examiner's broadest interpretation of the claim language, an "intermediate format" could be any format that does not render a complete final frame. The data of one field of the

frame as described in column 11, lines 11-61 and Fig. 7, represents the frame but in an incomplete form; thus, being "intermediate" for that reason.

Even with a different interpretation of the claim language, one of ordinary skill in the art would recognize that the feature of "partially decoding to an intermediate format" is inherent in almost any process of decoding data, for the following reasons: data decoding cannot be completed instantly but rather takes a certain amount of time to be completed. So, there must be a time point during the decoding, at which the decoding is not completed yet. At that particular time, (1) since the decoding is not completed yet, it is partial and (2) the produced data is not final yet, it is in an "intermediate format".

For these reasons, claim 15 is not allowable and stand rejected as previously presented.

At page 24, Applicant argues that "decoding and decompressing are two separate actions." In response the Examiner respectfully submits that one of ordinary skill in the art would easily recognize that encoding a picture frame using MPEG scheme must involves compressing of data. In other words, MPEG is a compressing scheme used for moving picture, and the data produced from the moving picture and its picture frames after compressed with this scheme, is called MPEG-encoded. The decoding process is a reverse process that converts the MPEG-encoded frames back to displayable format. During decoding, a decompressing step must be performed on the compressed data to undo the compressing step performed during encoding. Even Robert Chevalier, the primary examiner who was with the Examiner during the interview dated 11/13/2007, said that an Official Notice was not necessary in this case because

regarding MPEG streams, decoding and decompressing were actually the same thing. For the reason that it is so obvious to see the equivalence of the terms "decoding" and "decompressing" in this case, the Examiner decides to maintain the rejection.

Regarding the original claim 11, which has been cancelled and incorporated into the amended claim 1, at pages 25-26, Applicant argues that the teachings of both Wang and Thompson are directed to coding, which is contrary to decoding as claimed. In response, the Examiner respectfully submits that Comer teaches "decoding" so already discloses the limitation. The combination of Comer, Wang, and Thompson is very obvious and well motivated as follows: Comer in column 11, lines 1-10, describes a step of converting the video for display in NTSC format. A frame in NTSC format is composed of even field (comprising even lines of pixels in the picture) and odd field (comprising the odd lines of pixels in the picture). The processing steps described in column 11, lines 19-61 of Comer clearly shows that one of the fields will be discarded, thus directing to reducing the amount of data. Wang is also directing to reducing the amount of data by "down-sampling the interlaced video sequence by deleting either all the even or all the odd fields" (either odd field or even field comprises alternating rows of the picture). This is the task Comer is trying to do in converting the video data to NTSC format as described above although Comer does not explicitly specify the details. Further, Thompson discloses the amount of data further being reduced, as described in the abstract, by "deleting odd pixels of each line of TV field#1 and even pixels of each line of TV field#2". Refer to the discussion of Comer and Wang above, a combination of Comer and Wang would result in rows or lines of non-deleted pixels. Applying

Thompson would reduce the data further by deleting alternate pixels of each line in each field. This is very useful because Comer is implementing a fast reverse playback (column 10, lines 52-53). Therefore, data need to be quickly processed. The rejections therefore stand as previously presented.

Contrary to Applicant's arguments, claim 20 has been found amended to include new subject matters ("key audio packets", "delta audio packets", and "deleting N of P delta frames, wherein N and P are integers and wherein N is determined based on a combination of the amount of memory available for storing decoded video frames and the frame rate desired during reverse playback").

Regarding claims 28 and 33, see the discussions above with respect to claims 1 and 11 above. Also see the details of the rejections below.

Regarding Applicant's arguments with respect to reasons to combine Comer, Wang, and Thompson expressed at page 31, see the discussion of claim 11 above.

At page 35, Applicant argues there is no reason to combine Comer, Wang, Thompson, Miyano, and Wilkinson. The Examiner addressed the reason to combine Comer, Wang, and Thompson as described in the discussion of claim 11 above. The combination of Comer and Miyano is motivated in a similar way. When Comer trying to implementing the operation of **fast** reverse playback, one of ordinary skill in the art would recognize that less processing time is needed (otherwise, it cannot be fast). Therefore, he or she would look into reducing the data that need to be processed as a very good motivation. Regarding the combination of Comer and Wilkinson, the Examiner respectfully submits that although Comer does not explicitly disclose playing

back the audio data in reverse order, he does disclose playing back the video data in reverse order (column 10, lines 52-53). One of ordinary skill in the art would recognize also playing associated audio data in reverse order while the video is reversely played back would maintain the consistency and synchronization between the video data and its associated audio data. For example, it makes no sense to play the audio in forward order while the video is being played in reverse mode. Peng discloses discarding alternating frames of audio data; thus is combined for the similar reason as Wang and Thompson discussed above. Specifically, the purpose is to reduce the amount of data to be processed during fast playback mode. The combination, therefore, is well motivated. Regarding the combination of Rault, Rault discloses applying a lossless compression algorithm ([0027]; [0028]) to each decoded delta frame ([0058]; [0064]; [0066]). Applying Rault into Comer and Wilkinson would have two benefits: (1) producing output signals of different formats and can be played back by various kinds of apparatus; and (2) maintaining the quality of the data (by applying a lossless compression scheme). Therefore, combination of Rault into Comer and Wilkinson is well motivated and obvious. Finally, Oura disclose storing each of the compressed delta frames. Obviously, storing for records and later playback is everywhere in the field of video recording. One of ordinary skill in the art would know that processing without storing is virtually useless and cannot find any practical applications.

Dependent claims are therefore also rejected as previously presented.

At page 37-39, Applicant argues that the next action should not be final because the Examiner "failed to provide specific claim rejections and/or reasoning for those

regions." Applicant also argues that, "the Examiner provides little to no explanation as to how the components of the cited reference correspond to the actual claim language. Furthermore, the Office provides little or no explanation as to how the operation of components of the cited reference corresponds to that of the actual claim language." In response, the Examiner respectfully disagrees. In the Office Action, the Examiner did cite clearly in the references where each limitation should be disclosed together with clear explanation and comments where they are necessary.

Therefore, the finality of the rejections is reasonable and appropriate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

TTC 12/26/07

Claims 1-10 and 15-19 are rejected under 35 U.S.C. ~~102(b)~~ 103(a) as being unpatentable over Comer (US Patent 6,201,927), Wang et al. (US Patent 5,193,004), and Thompson (US Patent 4,661,862).

Regarding claim 1, Comer discloses a method comprising: receiving a request to play compressed video data in a reverse direction (column 2, lines 54-56); identifying a most recent key frame received (column 2, lines 57-60; Fig. 1B; Fig. 2); decoding the most recent key frame (column 2, lines 57-63; Fig. 2); identifying delta frames received after the most recent key frame (Fig. 2; column 3, lines 22-31); decoding the identified delta frames (Fig. 2; column 3, lines 22-31); deleting fields of each decoded delta

frames (column 11, lines 53-61); and playing the remaining decoded delta frames in the reverse direction (Fig. 1B; Fig. 2; column 3, lines 32-51).. However, Comer does not disclose deleting alternating rows of pixels in each decoded delta frame and deleting alternating pixels in non-deleted rows of pixels in each decoded delta frame.

Wang et al. disclose deleting either odd or even fields, each of which includes alternating rows of pixels, in each frame (column 1, lines 10-15).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the step of deleting alternating rows of pixels as disclosed by Wang et al. into the method disclosed by Comer to reduce the bandwidth of the signals. The incorporated feature would speed up processing and fast playback.

However, the proposed combination of Comer and Wang et al. does not disclose deleting alternating pixels in non-deleted rows of pixels in each decoded delta frame.

Thompson discloses deleting alternating pixels in non-deleted rows of pixels in each decoded delta frame (abstract).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the step of deleting alternating pixels in non-deleted rows of pixels as disclosed by Thompson into the method disclosed by Comer and Wang et al. to further reduce the bandwidth of the signals. The incorporated feature would further speed up the processing and fast playback. Also it would make the method compatible with display device with less resolution.

Regarding claim 2, Comer also discloses playing the decoded key frame playing the decoded delta frames in the reverse direction (Fig. 1B; Fig. 2; column 3, lines 43-45).

Regarding claim 3, Comer also discloses playing the decoded key frame after playing the decoded delta frames in the reverse direction (Fig. 1B; Fig. 2; column 3, lines 43-45); identifying a next most recent key frame (column 3, lines 38-40; Fig. 1B; Fig. 2); decoding the next most recent key frame (Fig. 2); identifying a second set of delta frames received after the next most recent key frame and before the most recent key frame (Fig. 1B; Fig. 2; column 3, lines 41-48); decoding the second set of delta frames (Fig. 1B; Fig. 2; column 3, lines 41-48); and playing the second set of decoded delta frames in the reverse direction (Fig. 1B; Fig. 2; column 3, lines 41-51).

Regarding claim 4, Comer also discloses decoding the identified delta frames includes decoding the identified delta frames in a forward playback direction (Fig. 1B; Fig. 2; column 3, lines 23-31).

Regarding claim 5, Comer also discloses decoding the identified delta frames includes utilizing data contained in the most recent key frame (column 2, lines 30-42; column 11, lines 42-56; column 12, lines 47-50).

Regarding claim 6, Comer further discloses decoding compressed video bit stream (column 4, lines 55-58) and the key frame is compressed according to MPEG standard (column 10, lines 45-51, 56-63). However, Comer does not disclose decoding the most recent key frame includes decompressing the most recent key frame.

It is well known in the art that decoding compressed MPEG frame must comprise decompressing (see "Response to Arguments" above). Therefore, Official Notice is taken.

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the decompressing the key frame into the method disclosed by Comer to make it compatible with existing standards such as MPEG because those standards like MPEG uses compression during encoding.

Regarding claim 7, Comer also discloses decoding the identified delta frames includes storing 1 of N identified delta frames and discarding the remaining identified delta frames (Fig. 8A; column 12, lines 32-57).

Regarding claim 8, Comer also discloses N is an integer portion of a result of applying a square root function to the number of delta frames associated with each key frame (Fig. 8A – Note that, in Fig. 8A, N is 3, which is equal to the integer portion of square root of total number of delta frames associated with each key frame, which is 11).

Regarding claim 9, Comer also discloses deleting alternating delta frames after decoding the identified delta frames (In Fig. 8A, for GOP B, P(19) is not deleted while P(16) and P(22) are deleted and not displayed as shown in the display sequence).

Regarding claim 10, Comer also disclose deleting N of every P frames after decoding the identified delta frames, wherein N and P are integers (In Fig. 8A, 10 frames are deleted out of 12 frames from display as shown in the display sequence).

Regarding claim 15, Comer also discloses decoding the most recent key frame includes partially decoding the most recent key frame to an intermediate format (column 11, lines 11-61; Fig. 7).

Regarding claim 16, Comer also discloses the intermediate format is used in decoding the identified delta frames (column 11, lines 42-56).

Regarding claim 17, Comer also discloses decoding the identified delta frames includes partially decoding at least one of the identified delta frames to an intermediate format (column 11, lines 51-61; column 11, line 62 – column 12, line 12).

Regarding claim 18, Comer also discloses the intermediate format is used in decoding subsequent delta frames (column 11, line 62 – column 12, line 12).

Claim 19 is rejected for the same reason as discussed in claim 1.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comer (US Patent 6,201,927), Wang et al. (US Patent 5,193,004), and Thompson (US Patent 4,661,862) as applied to claims 1-10 and 15-19 above, and further in view of Miyano (US Patent 5,694,172).

Regarding claim 12, see the teaching of Comer, Wang et al., and Thompson as discussed in claim 1 above. However, the proposed combination of Comer, Wang et al., and Thompson does not disclose reducing an amount of data associated with each pixel in each decoded delta frame; and storing the reduced amount of data associated with each decoded delta frame.

Miyano discloses reducing an amount of data associated with each pixel in each decoded delta frame (column 4, lines 28-33); and storing the reduced amount of data associated with each decoded delta frame (column 4, lines 48-51).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the steps of reducing an amount of data associated with each pixel in each decoded delta frame; and storing the reduced amount of data associated with each decoded delta frame as disclosed by Miyano into the method disclosed by Comer, Wang et al., and Thompson to reduce the bandwidth of the signals. The incorporated feature would speed up the processing and fast playback. Also it would make the method compatible with display device with less resolution.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comer (US Patent 6,201,927), Wang et al. (US Patent 5,193,004), and Thompson (US Patent 4,661,862) as applied to claims 1-10 and 15-19 above, and further in view of Rault (US 2004/0179597) and Oura et al. (US 2003/0007556).

Regarding claim 13, see the teachings of Comer, Wang et al., and Thompson as discussed in claim 1 above. However, the proposed combination of Comer, Wang et al., and Thompson does not disclose applying a lossless compression algorithm to each decoded delta frame; and storing each of the compressed delta frames.

Rault discloses applying a lossless compression algorithm ([0027]; [0028]) to each decoded delta frame ([0058]; [0064]; [0066]).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate applying a lossless compression algorithm to each

decoded delta frame as disclosed by Rault into the method disclosed by Comer, Wang et al., and Thompson to transcode the video data into different popular encoding schemes without degrading the quality of the data. The incorporated feature that provides transcoding function would make the method more robust because of its capability of producing output signals of different formats.

However, the proposed combination of Comer, Wang et al., Thompson, and Rault does not disclose storing each of the compressed delta frames.

Oura et al. disclose storing each of the compressed delta frames ([0069]).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the step of storing the encoded frames as disclosed by Oura et al. into the method disclosed by Comer, Wang et al., Thompson, and Rault for storage purpose so that later playback is possible; thus, making the method more useful.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comer (US Patent 6,201,927), Wang et al. (US Patent 5,193,004), and Thompson (US Patent 4,661,862) as applied to claims 1-10 and 15-19 above, and further in view of Wilkinson (US Patent 4,689,697).

Regarding claim 14, see the teachings of Comer, Wang et al., and Thompson as discussed in claim 1 above. Further, Comer also discloses identifying at least one compressed audio packet associated with the compressed video data (column 4, lines 55-58; column 5, lines28-36); decoding the compressed audio packet (column 5, lines 40-42); and playing the decoded audio packet (column 5, lines 42-45). However, the

proposed combination of Comer, Wang et al., and Thompson does not disclose playing the audio packet in reverse order. Comer only discloses playing the decoded video in reverse order (Fig. 1B; Fig. 8A; column 3, lines 32-54).

Wilkinson discloses playing audio packet in reverse order (column 7, lines 19-28).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate playing the audio packets in reverse order disclosed by Wilkinson into the method disclosed by Comer, Wang et al., and Thompson so that the audio is synchronized and consistent with scenes presented by the video data when they are played back in the reverse order because playing audio in forward direction while playing the video in reverse direction would make the audio irrelevant and annoying.

Claims 28-29, 31-36, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comer (US Patent 6,201,927) and Wilkinson (US Patent 4,689,697).

Regarding claim 28, Comer discloses an apparatus comprising: an audio decoder coupled to receive compressed audio data and decode the compressed audio data (column 5, lines 40-42; "AC3/MPEG AUDIO DECODER" in Fig. 4); an audio data store coupled to the audio decoder (column 5, lines 40-42); a video decoder coupled to receive compressed video data and decode the compressed video data ("MPEG DECODE" in Fig. 3; "MPEG2 VIDEO DECODER" in Fig. 4; column 5, lines 17-19, 28-36); a video data store coupled to the video decoder ("FRAME BUFFER" in Fig. 3;

"FRAME BUFFERS" in Fig. 4); and a reverse playback controller coupled to the audio decoder and the video decoder, wherein the reverse playback controller generates the decoded video data in a reverse direction (Fig. 1B; Fig. 2; column 3, lines 32-54).

Comer does not disclose the reverse playback controller to generate the decoded audio data in a reverse direction.

Wilkinson discloses a reverse playback controller to generate audio data in a reverse direction (column 7, lines 19-28).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate playing the audio packets in reverse order disclosed by Wilkinson into the apparatus disclosed by Comer so that the audio is synchronized and consistent with scenes presented by the video data when they are played back in the reverse order because playing audio in forward direction while playing the video in reverse direction would make the audio irrelevant and annoying.

Regarding claim 29, Comer also discloses the compressed video data includes at least one key frame and a plurality of delta frames associated with the key frame (Fig. 1B; Fig. 8A; column 2, lines 26-52).

Regarding claim 31, Comer also discloses the video decoder deletes alternating frames of received video data (In Fig. 8A, for GOP B, P(19) is not deleted while P(16) and P(22) are deleted and not displayed as shown in the display sequence).

Regarding claim 32, Comer also discloses the reverse playback controller is further coupled to receive forward playback instructions and reverse playback instructions (column 2, lines 53-57).

Regarding claim 33, Comer discloses one or more computer-readable media having stored thereon a computer program that, when executed by one or more processors, causes the one or more processors to: receive a request to play compressed multimedia data in a reverse direction (column 2, lines 54-56); identify a most recent video key frame received in the compressed multimedia data (column 2, lines 57-60; Fig. 1B; Fig. 2); decode the most recent video key frame (column 2, lines 57-63; Fig. 2); identify video delta frames received after the most recent video key frame (Fig. 2; column 3, lines 22-31); decode the identified video delta frames (Fig. 2; column 3, lines 22-31); identify at least one compressed audio packet in the compressed multimedia data (column 5, lines 40-42); decode the compressed audio packet (column 5, lines 40-45); and play the decoded video delta frames and the decoded audio packet in the reverse direction (Fig. 1B; Fig. 2; column 3, lines 32-54).

Comer does not disclose playing the decoded audio data in a reverse direction.

Wilkinson discloses playing audio data in a reverse direction (column 7, lines 19-28).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate playing the audio packets in reverse order disclosed by Wilkinson into the apparatus disclosed by Comer so that the audio is synchronized and consistent with scenes presented by the video data when they are played back in the reverse order because playing audio in forward direction while playing the video in reverse direction would make the audio irrelevant and annoying.

Regarding claim 34, Comer also discloses one or more computer-readable media as recited in claim 33 wherein the audio packet is associated with at least one decoded delta frame (column 5, lines 40-45).

Regarding claim 35, Comer also discloses alternating video delta frames are deleted after decoding the alternating video delta frames (In Fig. 8A, for GOP B, P(19) is not deleted while P(16) and P(22) are deleted and not displayed as shown in the display sequence).

Regarding claim 36, Comer also discloses N of P video delta frames are deleted after decoding the video delta frames N wherein N and P are integers (In Fig. 8A, 10 frames are deleted out of 12 frames from display as shown in the display sequence).

Regarding claim 38, Comer also discloses the one or more processors further store the decoded video delta frames and the decoded audio packet (column 3, lines 17-31; column 5, lines 40-45).

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comer (US Patent 6,201,927) and Wilkinson (US Patent 4,689,697) as applied to claims 28-29, 31-36, and 38 above, and further in view of Peng (US Patent 6,269,117).

Regarding claim 30, see the teachings of Comer and Wilkinson as discussed in claim 28 above. Further, Comer also discloses the reverse playback controller discards alternating frames of received video data (In Fig. 8A, for GOP B, P(19) is not deleted while P(16) and P(22) are deleted and not displayed as shown in the display sequence). However, the proposed combination of Comer and Wilkinson does not disclose the

reverse playback controller does the operation of discarding alternating frames of received audio data.

Peng discloses the operation of discarding alternating frames of received audio data (column 9, lines 51-53; column 5, lines 8-12).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the operation of discarding alternating frames of received audio data as disclosed by Peng into the reverse playback controller to lower the sample rate of the audio during a fast reverse playback. The incorporated feature is necessary to keep the audio in sync with the video during a fast reverse playback. It also helps speed up the processing and outputting because of low bandwidth.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comer (US Patent 6,201,927) and Wilkinson (US Patent 4,689,697) as applied to claims 28-29, 31-36, and 38 above, and further in view of Rault (US 2004/0179597) and Oura et al. (US 2003/0007556).

Regarding claim 37, see the teachings of Comer and Wilkinson as discussed in claim 33 above. However, the proposed combination of Comer and Wilkinson does not disclose applying a lossless compression algorithm to each decoded delta frame; and storing each of the compressed delta frames.

Rault discloses applying a lossless compression algorithm ([0027]; [0028]) to each decoded delta frame ([0058]; [0064]; [0066]).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate applying a lossless compression algorithm to each

decoded delta frame as disclosed by Rault into the computer-readable media disclosed by Comer and Wilkinson to transcode the video data into different popular encoding schemes without degrading the quality of the data. The incorporated feature that provides transcoding function would make the computer-readable media more robust because of its capability of producing output signals of different formats.

However, the proposed combination of Comer and Rault does not disclose storing each of the compressed delta frames.

Oura et al. disclose storing each of the compressed delta frames ([0069]).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the step of storing the encoded frames as disclosed by Oura et al. into the computer-readable media disclosed by Comer, Wilkinson, and Rault for storage purpose so that later playback is possible; thus, making the method more useful.

Allowable Subject Matter

Claims 20-27 are allowed.

Claim 20 recites, "identifying a most recent audio key packet previously received"; "decoding the most recent audio key packet"; identifying audio delta packets received subsequent to the most recent audio key packet"; "decoding the identified audio delta packets"; and "deleting N of P delta frames, wherein N and P are integers and wherein N is determined based on a combination of the amount of memory available for storing decoded video frames and the frame rate desired during reverse playback," which are unique features that are not disclosed by prior art.

Claim 27 is allowable for the same reason as discussed in claim 20 above.

Claims 21-26 depends either directly or indirectly from claim 20 above; thus, are also allowable.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is 571-270-1116. The examiner can normally be reached on M-Th:7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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